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Remarks

I.   Status

In the Office Action mailed February 23, 2005, the Examiner: (i) objected to claim 14 due to an informality; (ii) rejected claim 13 because "the digital logic device" lacked antecedent basis; (iii) rejected claims 1, 3-11, and 13-24 under 35 U.S.C. 102(e) as anticipated by U.S. Patent 6,282,701 to Wygodny et al. ("Wygodny"); (iv) rejected claims 2, 12, and 25-27 under 35 U.S.C. 103(a) as obvious over Wygodny in view of U.S. Patent No. 5,896,536 to Lindsey ("Lindsey").

Applicant has amended claims 13 and 14. Claims 1-27 are currently pending.

II.   Objections and Section 112 Rejections

A. Claim 14

The Examiner objected to the term "an debug program" in claim 14. Applicant has amended claim 14 to recite "a debug program," thereby obviating this objection.

B. Claim 13

The Examiner rejected claim 13 because "the digital logic device" lacked antecedent basis. Applicant has amended claim 13 to recite "a digital logic device," thereby obviating this objection.

III. Rejection of Claims 1, 3-11, and 13-24 Under 35 U.S.C. 102(e)

The Examiner rejected claims 1, 3-11, and 13-24 under 35 U.S.C. 102(e) as anticipated by Wygodny. Applicants respectfully traverse. A reference only anticipates a claim if it discloses every claimed element. E.g., MPEP 2131. In this case, Wygodny does not anticipate claims 1, 3-11, and 13-24 because it fails to disclose storing the state

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of the trigger expression when it is active within the machine-implemented process without interrupting the process and restoring the state of the trigger expression when requested.

More specifically, Wygodny is directed to tracing the execution paths of a program and thereby isolating bugs that may exist in the program. The description is directed at overcoming issues pertaining to distributed, client/server, and parallel systems, especially multi-threaded and multi-processing systems in which, it is observed, such systems are notorious for having non-reproducible problems because such systems depend heavily on timing and synchronization sequences that cannot be easily duplicated. The notion of the term 'tracing' appears to be limited in the reference, to obtaining information regarding the execution of the program.

Contrary to the teachings of the Wygodny, the subject invention is related to identifying trigger expressions in a program, storing the states of the trigger expressions during implementation of the program and the subsequent ability to restore a state of each such trigger expression. Known debugging program functions of implementing watches and retrieving variable values are used in the present invention to implement a concept which allow users much greater freedom when debugging a program. To activate this concept, the user specifies the variable to track and a special watch point is set on that variable. However, when the value of this variable changes, program execution is not stopped, but rather the point of change and the variable's value are saved.

The state of the trigger expression also has the concept of associated variables such that when the variable being tracked changes value the value(s) of these associated variable(s) is also saved. Having this information allows the user to solve a problem that

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has not been previously solved and that is to take the user from the current point of execution and place them back at the point where the variable's value changed. By restoring the values of the associated variables users can approximate the environment at the time that the change was made to tracked variable. This allows the user to essentially back up in time and debug the problem. By choosing the right associated variables, users can put themselves right back in the situation where the problem initially appeared, without having to rerun the program. Implementation of the invention provides a trigger variable/expression and associated program execution snapshots are presented to the user and a corresponding process execution state of the program can be restored.

Applicant notes that claims 3-4 further require that the step of storing the state of the trigger expression further comprise "creating a history of the trigger expression comprising storing each state of the trigger expression when it is active." Applicant also notes that claim 8 further requires the acts of "specifying at least one attached expression; storing the state of the at least one attached expression when the trigger expression is active within the machine-implemented process; and restoring the state of the at least one attached expression when requested."

Claims 5-7, 9-11, and 13-24 contain limitations similar to those described above. Thus, it is apparent that all of the features of the subject matter of the methods of tracing the activity of an expression as defined in claims 1 to 12 of the subject application, the tracing devices as defined in claims 13 to 18, the processing device to trace the activity of a program expression as defined in claim 19, a profiler to record the profile of a particular program expression as define in claims 20 to 24, nor the article of manufacture as defined in claims 25 to 27 as presented are not described nor suggested in Wygodny. As

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such it is respectfully submitted that the presently claimed invention cannot be considered to be anticipated and thus does patentably define over the teachings of this reference.

IV.   Rejection of Claims 2, 12, and 25-27 under 35 U.S.C. 103(a)

The Examiner rejected claims 2, 12, and 25-27 under 35 U.S.C. 103(a) as obvious over Wygodny in view of Lindsey. Applicants respectfully traverse. A combination of references only obviates a claim if it teaches or suggests every claimed element. *E.g., MPEP 2143.* As previously discussed, Wygodny fails to teach or suggest storing the state of the trigger expression and restoring the state of the trigger expression when requested.

Lindsey is directed at a technique for permitting tracepoints to be set relative to data components of object oriented programs for debugging purposes is disclosed. Lindsey creates a new method that intercepts messages intended to access the designated data, and depending on the type of access being attempted and/or other conditions set by the developer, tracing may be initiated, modified, or terminated. Tracing is controlled by forwarding an appropriate message to a trace manager. The read or write operation is preserved by the newly created access method, which performs the desired access of the data component. *Lindsey, Abstract.* Accordingly, Applicant respectfully submits that Lindsey also fails to disclose storing the state of the trigger expression when it is active within the machine-implemented process without interrupting the process and restoring the state of the trigger expression when requested.

V.   Conclusion

Applicant believes that the present application is now in condition for allowance and respectfully requests allowance of each of the pending claims. Applicant also invites the Examiner to call Applicant's attorney at the number listed below if the Examiner

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believes that a telephone interview would be helpful in expediting allowance of the present application.

Respectfully submitted,

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